National Institute of Environmental Health Sciences

Case studies on heat stress related perceptions in different industrial sectors in southern India

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Abstract:

Linkages between thermal loads and its physiological consequences have been widely studied in non-tropical developed country settings. In many developing countries like India, despite the widespread recognition of the problem, limited attempts have been made to estimate health impacts related to occupational heat stress and fewer yet to link heat stress with potential productivity losses. This is reflected in the ubiquity of workplaces with limited or no controls to reduce exposures. As a prelude to understanding the feasibility of alternative interventions in different industrial sectors, we present case studies from 10 different industrial units in Tamil Nadu, Chennai, which describe perceptions of occupational heat stress among the workers and supervisors/management.Units were selected from among those who had previously requested an assessment of workplace heat stress exposure at select locations as part of routine industrial hygiene services provided by the investigators. Since the earlier measurements were performed in response to a management request, all units were revisited to generate a simple job and process profile using checklists in order to understand the overall heat exposure situation in the concerned unit. This was followed by a simple questionnaire administration to a small subsample of employees to evaluate the perceptions of workers and supervisors/management. Finally, we retrieved available quantitative data from previous measurements of heat stress at these units to correlate prevalence of exposures with respective perceptions.Results indicate that the existing level of controls may not be sufficient for managing work-related heat stress in any of the sectors studied, with wide variations in perceived risks. There was a noticeable disconnect between worker's perceptions and their ability to secure workplace improvements related to heat stress from the management. Wider availability of engineering and administrative controls in the industries may be facilitated by monitoring worker discomfort, disability, and performance in more intensive ways so that the top management is able to justify the associated cost benefits.Given the potential implications of future climate change related increases in ambient heat stress that are likely to translate into workplace exposures in developing country settings, concerted efforts are needed to integrate exposure assessments with assessments of productivity as well as health impacts. This will likely build the momentum for much needed interventions for large worker populations in the developing world.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2997729

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature: ☑

resource focuses on specific type of geography

Tropical

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: India

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat stress

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified